

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/768,003

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented): An optical pickup apparatus for reading information from a plurality of types of discs at different reading wavelengths, comprising:
 - a light source having a plurality of integrated light emitting portions for emitting laser beams of different wavelengths, said light source being adapted to selectively emit one of the laser beams of different wavelengths;
 - a photodetector comprising, a pair of subbeam receiving sections disposed one after the other in a direction in which central division lines extend, for receiving subbeams, and a plurality of four-division light receiving sections arranged such that one of the subbeams is received by a different four-division light receiving section adjacent to a four-division light receiving section which receives the selected laser beam; and
 - an optical system for directing the laser beam emitted from said light source to said disc, and for directing the laser beam reflected by said disc to said photodetector;wherein said light source is positioned such that a straight line connecting respective light emitting points of said plurality of light emitting portions is coincident with a tangential line of a track on a disc to be reproduced.
2. (original): An optical pickup apparatus according to claim 1, wherein:

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/768,003

said optical system includes an astigmatism element for providing the laser beam with astigmatism, and said photodetector includes a plurality of four-division light receiving sections arranged corresponding to each of the plurality of laser beams of different wavelengths, and is configured such that central division lines of said four-division light receiving sections are in alignment with one another; and

said photodetector is disposed such that said central division lines are coincident with said tangential line of the track.

3. (previously presented): An optical pickup apparatus according to claim 1, wherein:
said optical system includes an astigmatism element for providing the laser beam with astigmatism, and a diffraction element for generating a pair of subbeams from the laser beam;
wherein the plurality of four-division light receiving sections are arranged in correspondence to each of the plurality of laser beams of different wavelengths, and further arranged such that central division lines thereof are in alignment with one another.

4. (previously presented): An optical pickup apparatus according to claim 1, wherein:
said optical system includes an astigmatism element for providing the laser beam with astigmatism, and a diffraction element for generating a pair of subbeams from said laser beam;
wherein the plurality of four-division light receiving sections are arranged in correspondence to each of the plurality of laser beams of different wavelengths and further arranged such that central division lines thereof are in alignment with one another; and

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/768,003

said subbeam receiving sections are formed with regions which can receive all subbeams generated from all the laser beams of different wavelengths emitted from said light source.

5. (previously presented): An optical pickup apparatus according to claim 1, wherein:
said optical system includes an astigmatism element for providing said laser beam with astigmatism, and a diffraction element for generating a pair of subbeams from the laser beam; wherein the plurality of four-division light receiving sections arranged in correspondence to each of the plurality of laser beams of different wavelengths, said plurality of four-division light receiving sections arranged such that central division lines thereof are in alignment with one another;

wherein further two divisional regions of the four-division light receiving section for receiving an arbitrary laser beam serve as two divisional regions of a four-division light receiving section for receiving a laser beam of a different wavelength from that of said arbitrary laser beam; and

the remaining two divisional regions other than said two divisional regions are also used as a subbeam receiving section for receiving said subbeam.

6. (previously presented): An optical pickup apparatus as claimed in claim 1, wherein said light source is a one-chip laser diode which is formed with one electrode as a common electrode for said plurality of light emitting portions.

7. (canceled).

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/768,003

8. (canceled).

9. (canceled).

10. (canceled).

11. (canceled).

12. (canceled).

13. (currently amended): An optical pickup apparatus for reading information from a plurality of types of discs at different reading wavelengths, comprising:

a light source having ~~a plurality of~~ integrated light emitting portions for emitting first and second laser beams of different wavelengths, said light source being adapted to selectively emit one of the first and second laser beams of different wavelengths;

an optical system that generates a main beam and two subbeams from a selected laser beam of the first and second laser beams and directs the main beam and the subbeams towards an object disc;

~~a photodetector comprising, a pair of subbeam receiving sections disposed one after the other in a direction in which central division lines extend, for receiving subbeams, and a plurality of~~

a first four-division photodetector; light receiving sections

a second four-division photodetector, wherein the first and second four-division photodetectors are arranged corresponding to each of the plurality of laser beams of different wavelengths and configured such that central division lines of said first and second four-division

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/768,003

photodetectors light receiving sections are in alignment with one another and coincident with a tangential direction of a track of the object disc; and

a first sub-photodetector disposed on one side of the first and second four-division photodetectors in a direction along which the central division lines extend; and
a second sub-photodetector disposed on another side of the first and second four-division photodetectors in the direction along which the central division lines extend,

wherein the an optical system directs a main beam reflected from the object disc to a corresponding one of the first and second four-division photodetectors and directs the subbeams reflected from the object disc to the first and second sub-photodetectors. for directing the laser beam emitted from said light source to said disc, and for directing the laser beam reflected by said disc to said photodetector.

14. (previously presented): An optical pickup apparatus according to claim 13, wherein said optical system includes an astigmatism element for providing the laser beam with astigmatism.

15. (currently amended): An optical pickup apparatus according to claim 13, wherein said first laser beam has a shorter wavelength than that of said second laser beam, and
wherein a distance between the light emitting portion for emitting the first laser beam and
an optical axis of the optical system is smaller than a distance between the light emitting portion
for emitting the second laser beam and the optical axis. two divisional regions of the four
division light receiving section for receiving an arbitrary laser beam serve as two divisional

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/768,003

~~regions of a four division light receiving section for receiving a laser beam of a different wavelength from that of said arbitrary laser beam; and the remaining two divisional regions other than said two divisional regions are also used as a subbeam receiving section for receiving said subbeam.~~

16. (currently amended): An optical pickup apparatus according to claim 13, wherein said first laser beam has a shorter wavelength than that of said second laser beam, and wherein the light emitting portion for emitting the first laser beam is positioned on an optical axis of said optical system includes an astigmatism element for providing the laser beam with astigmatism, and a diffraction element for generating a pair of subbeams from the laser beam.

17. (previously presented): An optical pickup apparatus according to claim 13, wherein said light source is a one-chip laser diode which is formed with one electrode as a common electrode for said plurality of light emitting portions.

18. (canceled).

19. (new): An optical pickup apparatus, comprising:
a light source that selectively emits one of a first laser beam and a second laser beam as a selected beam, wherein the first laser beam has a different wavelength than the second laser beam;

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/768,003

an optical system that directs a first main beam, which corresponds to the selected beam, to a first four-division photodetector and that directs a first sub-beam, which corresponds to the selected beam to a first sub-photodetector;

wherein a first straight line passing though a first optical axis of the first laser beam and though a second optical axis of the second laser beam is parallel to a tangential line of a track of a disc to be reproduced by the optical pickup apparatus.

20. (new): The optical pickup apparatus as claimed in claim 19, wherein the first straight line is perpendicular to the first optical axis and the second optical axis.

21. (new): The optical pickup apparatus as claimed in claim 19, wherein a second straight line passing though the first four-division photodetector and the first sub-photodetector is parallel to a tangential line of a track on the disc.

22. (new): The optical pickup apparatus as claimed in claim 19, further comprising:
a second four-division photodetector; and
a second sub-photodetector,
wherein the optical system directs a second main beam, which corresponds to the selected beam, to the second four-division photodetector and that directs a second sub-beam, which corresponds to the selected beam to the second sub-photodetector.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/768,003

23. (new): The optical pickup apparatus as claimed in claim 22, wherein a second straight line passes through the first four-division photodetector, the second four-division photodetector, the first sub-photodetector, and the second sub-photodetector.

24. (new): The optical pickup apparatus as claimed in claim 23, wherein the second straight line passes through central division lines of the first four-division photodetector and the second four-division photodetector.

25. (new): The optical pickup apparatus as claimed in claim 23, wherein the second straight line is parallel to a tangential line of a track on the disc.

26. (new): An optical pickup apparatus, comprising:
a light source that selectively emits one of a first laser beam and a second laser beam as a selected beam, wherein the first laser beam has a different wavelength than the second laser beam;
an optical system that directs a first main beam, which corresponds to the selected beam, to a first four-division photodetector, that directs a first sub-beam, which corresponds to the selected beam to a first sub-photodetector, that directs a second main beam, which corresponds to the selected beam, to a second four-division photodetector, that directs a second sub-beam, which corresponds to the selected beam to a second sub-photodetector; and

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/768,003

wherein a straight line passing through the first four-division photodetector, the first sub-photodetector, the second four-division photodetector, and the second sub-photodetector is parallel to a tangential line of a track on a disc to be reproduced by the optical pickup apparatus.

27. (new): The optical pickup apparatus as claimed in claim 26, wherein the first four-division photodetector, the first sub-photodetector, the second four-division photodetector, and the second sub-photodetector are aligned in an order the first sub-photodetector, the first four-division photodetector, the second four-division photodetector, and the second sub-photodetector.

28. (new): The optical pickup apparatus as claimed in claim 27, wherein the straight line passes through central division lines of the first four-division photodetector and the second four-division photodetector.